APPENDIX OF PENDING CLAIMS

1. (Once Amended) A transducer for converting from electrical energy to mechanical energy, the transducer comprising:

at least two electrodes; and

a polymer arranged in a manner which causes a portion of the polymer to deflect in response to a change in electric field, wherein a portion of the polymer is elastically pre-strained by a factor in the range of about 1.5 times to 50 times the original area.

2. The transducer of claim 1 wherein the transducer has a maximum linear strain of at least about 50 percent in response to the change in electric field.

3. The transducer of claim 1 wherein the transducer has a maximum linear strain of at least about 100 percent in response to the change in electric field.

4. The transducer of claim 1 wherein the transducer has a maximum area strain of at least about 100 percent in response to the change in electric field.

5. The transducer of claim 1 wherein the pre-strain is applied to a first orthogonal direction at a pre-strain greater than pre-strain in a second orthogonal direction.

6. The transducer of claim 5 wherein the pre-strain applied to the first orthogonal direction is used to enhance deflection in the second orthogonal direction.

7. (Once Amended) The transducer of claim 6 wherein the polymer has a dielectric constant between about 2 and about 20.

8. The transducer of claim 1 wherein the polymer comprises one of a silicone rubber and an acrylic.

9. The transducer of claim 1 further comprising a barrier layer.

10. The transducer of claim 1 wherein the polymer comprises a textured surface.

11. The transducer of claim 1 wherein the polymer has a thickness between about 1 micrometer and 2 millimeters.

12. The transducer of claim 1 wherein the polymer is one of a commercially available silicone elastomer, polyurethane, PVDF copolymer or adhesive elastomer.

13. The transducer of claim 1 wherein the change in electric field is at most about 440 MegaVolts/meter.

14. The transducer of claim 1 wherein the polymer has a maximum actuation pressure between about 0.1 Pa and about 10 MPa.

15. The transducer of claim 1 wherein the polymer has an operational frequency less than about 100 kHz.

16. The transducer of claim 1 wherein the polymer has an elastic modulus below about 100 MPa.

17. The transducer of claim 1 wherein the portion of the polymer deflects out of the plane of the polymer in response to the change in electric field.

18. The transducer of claim 1 further comprising a stiff member attached to a portion of the polymer.

19. The transducer of claim 18 wherein the stiff member is included in a frame.

20. The transducer of claim 1 wherein one of the at least two electrodes is compliant.

21. The transducer of claim 1 further comprising a second polymer arranged in a manner which causes a portion of the second polymer to deflect in response to a second change in electric field and the second polymer is coupled to the first pre-strained polymer.

22. The transducer of claim 21 wherein the second polymer is mechanically coupled to the first polymer such that they have the same deflection.

23. The transducer of claim 1 wherein the transducer is included in an artificial muscle.

24. A transducer for converting electrical energy to mechanical energy, the transducer comprising:

at least two electrodes; and

a polymer arranged in a manner which causes a portion of the polymer to deflect in response to a change in electric field provided by the at least two electrodes, wherein the portion deflects with a maximum linear strain between about 50 percent and about 215 percent in response to the change in electric field.

25. The transducer of claim 24 wherein the polymer comprises one of a silicone rubber and an acrylic.

26. The transducer of claim 24 wherein the polymer is one of a commercially available silicone elastomer, polyurethane, PVDF copolymer or adhesive elastomer.

27-52. Withdrawn from Consideration.

53. (New) The transducer of claim 24 wherein the polymer has a dielectric constant between about 2 and about 20.

54. (New) The transducer of claim 24 wherein the polymer comprises one of a silicone rubber and an acrylic.

55. (New) The transducer of claim 24 wherein the polymer has a thickness between about 1 micrometer and 2 millimeters.

56. (New) The transducer of claim 24 wherein the polymer has an elastic modulus below about 100 MPa.

57. (New) The transducer of claim 24 wherein the portion of the polymer deflects out of the plane of the polymer in response to the change in electric field.

58. (New) The transducer of claim 24 further comprising a stiff member attached to a portion of the polymer.

59. (New) The transducer of claim 24 wherein the transducer is included in an artificial muscle.